

INNOVATIVE PROCESSES AS BASIS OF ADAPTATION OF ELDERLY PEOPLE TO THE EQUIPMENT

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On the basis of system approach in the article the innovative behavior models as the way of effective adaptation of social systems in the unstable external environment based on the principle of co-evolutionary innovatics are investigated. The potential of co-evolutionary – innovative processes' use for creation of the effective mechanisms of social systems' adaptation in the unstable external environment is estimated.

Keywords: adaptation, elderly people, innovatics.

The formation of the information society has made significant adjustments to the external environment of social systems. The uncertainty and dynamism of the environment has become not only a key factor affecting their functioning and development, but also one of the most important implications of the global information space [1]. At the same time, the use of information and communication technologies creates the conditions for global changes in the mechanisms of interaction of social systems and the ability to adaption.

One of the most significant manifestations of the impact of communication and information technologies on social processes the information revolution has become, promoting the formation of macro trends, based on the expansion of the range of the mutual influence and the interaction of social systems. These trends, the formation of which was largely predetermined by the enhancing processes of integration, in prospect become a kind of catalyst for globalization processes; wherein each of them to a certain extent is the manifestation of global synergy. Globalization has formed a new favorable condition for the development of social systems, at the same time creating additional factors affecting the dynamics and uncertainty of the environment. Incomplete significantly complicates the procedure for the development of optimal behavior strategies; in these circumstances, one of the most important characteristics of the social system becomes the main - the ability to quickly and efficiently adaption to the dynamics of the external environment, which is determined by the susceptibility of the system to the innovations.

Today it would be unreasonable to treat an innovation as the separate isolated event, rather it represents the cyclic complex process involving in itself in the process of expansion all new and new changes relating to various aspects of society's life. As a result, for the formation of adequate model of innovative changes it is advisable to treat an innovation as some set of the processes connected by a large amount of interdependences of various complexity and nature [2].

Nowadays coherence and interdependence of separate processes constantly increases in the sphere of innovations that, in turn, steadily increases the dynamics of the external environment of social system. Innovations in the similar environment differ in high degree of complexity and have probabilistic character. At the same time, innovative behavior models allow to provide high extent of social systems' adaptation to the unstable external environment. It defines the choice of these models as a subject of the present research.

The significant change in the way of existence and development of social systems is the integral feature of social processes of the late XX – early XXI century. As a natural result, a new methodology of a research of society which is based on a synergetic paradigm, and using innovative behavior models of social systems has appeared. Synergetic approach, which is characterized at present particularly intensive development, is the most appropriate for the

analysis of complex adaptive and developing systems, which the modern social systems are. On the basis of this approach uncertainty is not treated as external anomaly in behavior of system which has to be overcome, but it is considered as its key characteristic that substantially expands limits of the theoretical analysis of specifics of systems' functioning and development. On the basis of this approach the application of innovative behavior models allows to expand as much as possible a range of probable reactions of social system to the dynamic changes of the external environment.

Emergence of the so-called integrated networks has to become one of the effective ways of reduction of risks of the functioning and development of social systems providing expansion of opportunities of their adaptation to the unstable external environment. Such networks include a set of subsystems that allows optimally using all available possibilities of their participants in various spheres of action. Thus, it is possible to speak about manifestations of the global synergies arising as a result of interaction of the accruing processes of globalization and synergy.

At the same time the emergence of the integrated networks is only at the initial stage today. It is determined, except other, the fact that the most part of social systems has no necessary flexibility for the creation of conditions of effective adaptation to the interactions within network yet. Nevertheless, it is obvious that data of network, even at the initial stage of their formation, are of essential interest in the context of optimum behavior models' development of the modern social systems participating in difficult interactions.

Features of the modern social environment and innovative processes allow creating conditions for use of synergetic approach when developing optimum innovative behavior models of social systems. From positions of this approach the increase in adaptation properties of system is based on transition to solutions of the distributed type in unstable, ambiguous situations that provides the necessary flexibility to innovative processes. It is obvious that nonlinearity and ambiguity of innovative processes and the environment of innovations' realization defines essentially new approach to the creation of innovative behavior models. It is the approach based on active use of the phenomena of self-organization.

The similar circumstance, in turn, inevitably attracts the increase of changes in structure, the external environment and behavior models of social systems, increasing thus nonlinearity of processes in which systems participate. In this context the problem of improvement of social systems' ability quickly and flexibly to react to changes of the external environment gains special importance. But the approach to development of innovative behavior models which is based on the self-organization phenomena, and created by emergence of global information space will not be able to be productive without realization with use of information and communication technologies as the main role in improvement of abilities of social system to adapt in the unstable environment is played by effective use of information resources [3]. The globalization which is followed by rapid development of communication and information technologies determined the need for the emergence of social systems of new type, which on the one hand, is the result of intensive interaction of innovative process's components, and on the other.

The increase of dynamics of the external environment of social systems and difficulties of mechanisms of their mutual influence is one of the most important sign lines of the present. In these conditions the definition of the possible directions of social development is of particular importance. Nevertheless, the results of the end of XX – the beginning of the 21st century demonstrate that creation of the exact and qualified forecasts of society's development is one of the most important and stubborn problems nowadays.

Substantially these difficulties are caused by the specifics of social systems forming their differences from natural and technical systems. The social system represents the elaborate unit which can include both certain individuals, and social communities of various

types as subsystems and elements. At the same time double determination takes place: on the one hand, the actions of separate elements and communication between them (structure) define properties of system as the whole; on the other hand, – the system in a varying degree determines properties of the elements included in it, acting as a unit in relation to the environment. The works of such thinkers as E. Giddens, I. Vallerstajn, P. Bourdieu, G. Spencer, M. Weber, E. Durkheim, T. Parsons etc. were devoted to a research of social systems, however till 80th years not enough attention was paid to the specifics of social systems determining their differences in functioning and development from natural and technical systems. Today it is one of the most perspective and at the same time problem directions of system researches.

Analyzing the features of social systems, we will note that first of all it is about conscious activity of the individuals defining, on the one hand, the operated course of evolutionary processes, and on the other hand, – the existence of the so-called "social memory" [4].

The social system is always installed when it is carried out the autopoietical relations of the communication which separate from the external environment through the restriction of the corresponding communications. Social system thus consists not of human or actions but of communications of elderly people [5]. In recent years, in scientific community the reductionist tendencies were visibly designated in attempts of interpretation of regularities of social evolution. Nevertheless, it is necessary to emphasize that, despite the considerable community of self-organization processes in technical, natural and social systems, the mechanical reduction in this case is absolutely unacceptable. This is determined by the pronounced specificity of the social system that does not allow the unconditional transfer laws identified in the development of mechanical and natural systems on the development of social systems. Besides, the features of perception strongly impact on the evolutionary trajectory of social system which is exposed to the directing influences of the social subject. In particular, there is active interaction between subject and object that can change not only the quality of their connection type, but the structure of the system.

One more feature of social systems is that they have high sensitivity to changes of the external environment at continuous change of quantitative and qualitative characteristics of interrelations with the external environment that dictates the need of systematic revision of the model used for the analysis of system. Besides, the structure of the social systems which are characterized by the broad variety of the nature of subsystems and communications represents extremely difficult, multiple-factor education, with a high potential of formation the so-called emergent effects caused by the existence in difficult system of properties of integrity, not inherent in its elements or subsystems; not reducibility of properties of system to the sum of properties of its components.

Such complex self-developing systems, as social, are classified to ergatic, ie human-dimension systems (systems with the participation of the person), based on the principle of behavior to achieve the maximum efficiency and survival. The essential feature of these systems are non-linear, the presence of feedback (positive and negative) and .the memory. In the process of development the systems reflect, interact, and late in the estimates of each other's behavior. The existence of social memory determines their lag effect causing, in turn, the heredity – manifestation of the effects of an after-effect. For ergonomics systems due to the inclusion of a person it is particularly important to solve the problem of the correlation of subject and object. It should be noted two basic approaches to this problem. The first corresponds to the position, which is based on the idea of the disappearance of the subject and the object as the mutually believing activity components; according to the second – there is a functional splitting of the person who can act both as the subject, and as an object.

The specifics of social systems determine the features of their evolution in turn forming the complexity of the management of social development. For the present period, it is typical

to strengthen the dynamics and the complexity of the environment and the mutual influence of social systems mechanisms. In the context of these conditions, the task of determining the possible trajectories of development of systems and their adaptation to the environment gains priority value. The analysis of the defining factors gives the chance to conclude that in today as the systems paying considerable attention to development of optimum behavior models, and the systems which are not doing it have almost identical chances to adapt and survive in the unstable external environment of elderly people.

High level of instability of the social environment often does not allow systems to use long-term forecasts and it determines the necessity of the development of qualitatively new strategy of behavior. In recent years the social systems more often use the principle of a rational incrementalism, consisting in formation and maintenance of the dynamic balance with the environment by means of the step-by-step changes which are most fully answering to changes of the environment of elderly people.

Both in the case of operation of the step-by-step changes' mechanism, and at the realization of cardinal innovations before system there is a necessity of the development of mechanisms and the techniques of conditions' creation for the success of the carried-out changes. The systems which the most complete use the information and knowledge in the direction of transformation of their external environment, are most effectively adapted. But the most significant increase in adaptation opportunities of social systems, as expected, can be reached during the application of the strategy of continuous updating. As the result, a permanent innovation turns into the key factor initiating complex adaptation of social system.

Complexity and dynamics of social processes inevitably form the need of the acceleration of innovative transformations in general and the improvement of procedures of information processing in particular. As the result the created information products so complex and multifaceted that the full forecast of opportunities and results of their usage becomes very problematic and expensive. The innovative climate supporting the efficiency of innovations' carrying out in the conditions of high dynamics of the external environment can also be very unstable, and the elaboration of long-term strategy becomes not only useless, but also pernicious because nowadays the key value is the ability of the social system to react quickly to the sudden changes of external conditions. At the same time the key importance is gained by innovative activity thanks to which the system acquires the necessary flexibility. Thus, in some cases the social system which is partially ignoring information on the external environment can more effectively and successfully realize the innovations.

The modern period of social development in general is characterized by a significant expansion of the range of innovative activity that is in many respects dictated by the attempts of social systems to increase their adaptation abilities. The experience of the last years showed that successful adaptation of social system is impossible without successfully functioning training mechanism. Along with the emergence of the complex, continuously extending networks of social systems, the relevant information networks of knowledge appear and develop. At the same time, despite the greater dispersion of sources of the used information, the strategy of participating systems of network can be joint for maintenance of the optimum mode of functioning. The formed infrastructure based on norms of free use of information provides thereby favorable conditions for the emergence of new links and structures.

The modern relations concerning information exchange have no final completeness, and the interactions between the social systems included in network more often have unsystematic character. At the registration of structural links there is the widest range of possible trajectories of system's development that confirms the importance of the choice with the system of communications' method in the information space.

One more problem caused by the formation of a global information space is the emergence of the whole range of non-canonical, informal communications of the systems

complicating the management and coordination of the processes of interaction in the network. These communications are formed owing to a combination of the mass phenomena of self-organization and imperfections of the arising network structures. In the conditions of the increasing instability and dynamics of social processes especially urgent is the problem of adequacy of innovative model.

The creation of cardinally new types of links and structures is one of the most essential manifestations of the principle of co-evolutionary innovatics. Concerning social systems this principle causes the amplifying tendency to association of the systems of different complexity and the nature which are characterized by own specifics. As a result, the complex structures are formed representing the global networks which are characterized by the presence of the maximum adaptation opportunities both at each participant, and at all structure. Thus, coevolutionary innovative processes form for social systems impressively significant opportunities of the creation of the effective mechanisms of adaptation of elderly people in the nonlinear external environment.

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